Trend Study 00-5-01

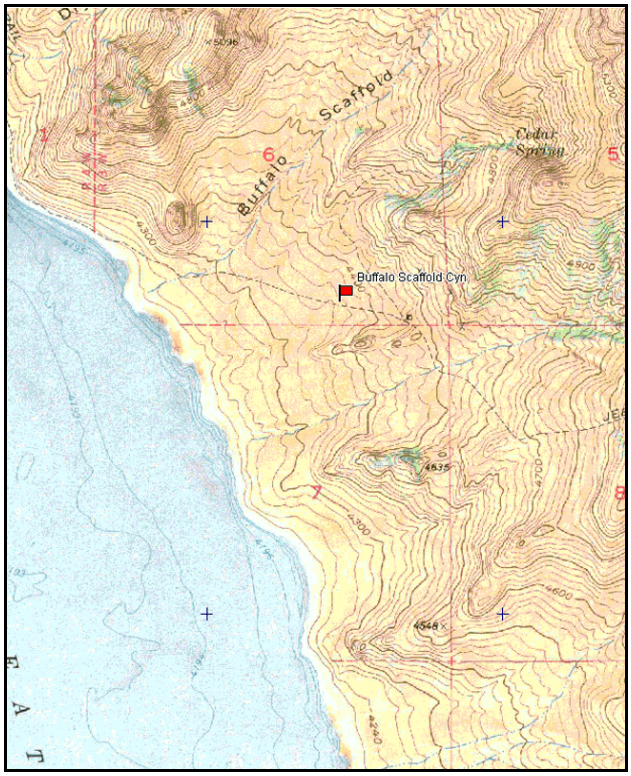
Study site name: Buffalo Scaffold Cyn. . Vegetation type: Annual Grass .

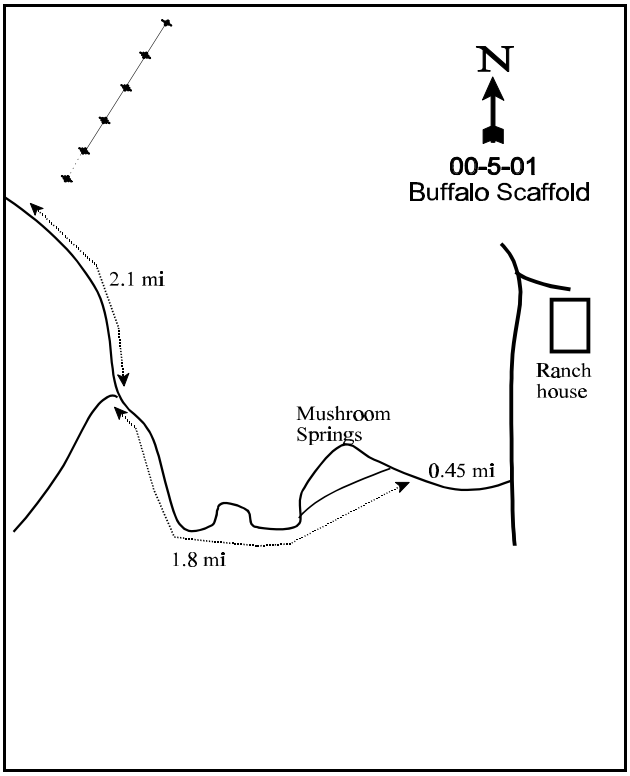
Compass bearing: frequency baseline 110 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From the ranch house, drive 0.5 miles to a fork. Turn right and drive another 0.45 miles to a fork. Turn right, and drive 1.4 miles to a fork by the Sentry Mountain Peak. Stay right, and drive 2.1 miles to witness post on the right side of the road at the bottom of a hill in a meadow. From the witness post walk 34 steps at a bearing of 110 degrees magnetic to the 0-foot baseline stake. The baseline runs in a direction of 340 degrees magnetic.





Map Name: Antelope Island

Diagrammatic Sketch

Township 2N , Range 3W , Section 6

UTM 4531522 N 396874 E

DISCUSSION

Trend Study No. 00-5

The Buffalo Scaffold study is located on the west side of Antelope Island about ½ mile south of Buffalo Scaffold Canyon. The site lies at an elevation of approximately 4,480 feet and slopes gently (3-5%) to the west. The shoreline of the Great Salt Lake is about 3/4 of a mile to the west. Fire burned the site sometime prior to establishment in 1995. The site is now dominated by annual herbaceous species. Bison pats and bighorn sheep pellets were sampled by a pellet group transect read in 2001. Use by bighorn sheep was light, while that of bison was estimated at 12 days use/acre (30 days use/ha).

Soil textural analysis indicates a sandy loam with a neutral pH (6.8). Effective rooting depth (see methods) is estimated at under 13 inches. Average soil temperature at 12 inches below the surface was 64°F. There is a slight color change in the soil profile about 8 inches below the soil surface. Organic matter is very low at less than 1%. Very little rock was encountered within the soil profile. Vegetation and litter cover have been high in all sampling years with most of this provided by annual species. The cover value for bare soil has been low at less than 1%. Erosion remains minimal even with the decline in litter cover.

No browse species were encountered on the site. Frequent fire intervals have effectively removed the browse component entirely off the site and most of the surrounding area.

In 1995 and 1996, nearly 90% of the grass cover was contributed by cheatgrass and rattail fescue. Due to the extremely dry conditions in Northern Utah in 2000-2001, these species decreased in cover and nested frequency in 2001. Currently (‘01), cheatgrass and rattail fescue contribute to just over half of the grass cover, or about 40% of the total vegetation cover on the site. Perennial grasses nearly doubled in sum of nested frequency in 2001. This increase is due mainly to the increase in purple three-awn and bulbous bluegrass, both low value species. Sand dropseed is present in low abundance, but did slightly increase in nested frequency in 2001.

Storksbill is the dominate forb followed by moth mullein. It was noted in 1996 that there were many old stalks from annual sunflower, but no plants were present from the current season. Other species encountered include prickly lettuce, yellow salsify and sego lily. Sego lily significantly increased in nested frequency in 2001.

1996 TREND ASSESSMENT

Soil trend is stable with no erosion apparent in 1996. Vegetative cover has declined but all other cover values have remained constant. Rattail fescue and cheatgrass dominate the site providing much competition for perennial species. Herbaceous trend is stable but with very poor composition.

TREND ASSESSMENT
soil - stable (3)
browse - n/a
herbaceous understory - stable (3) but with very poor composition

2001 TREND ASSESSMENT

Trend for soil continues to be stable. Vegetation and litter cover are abundant and well disbursed. Bare ground is very low at less than 1% cover. Browse remains non-existent on the site. Trend for the herbaceous understory is slightly up with an increase in sum of nested frequency of perennial grasses. Both cheatgrass and rattail fescue significantly decreased in nested frequency as well. Although the increase in perennial grass frequency comes primarily from two low value species, purple three-awn and bulbous bluegrass, these species are better than cheatgrass.

TREND ASSESSMENT
soil - stable (3)
browse - n/a
herbaceous understory - slightly up (4)

HERBACEOUS TRENDS --
Herd unit 00 , Study no: 5

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %		
		'95	'96	'01	'95	'96	'01	'95	'96	'01
G	Aristida purpurea	a74	b147	c216	29	61	82	3.39	4.82	17.06
G	Bromus tectorum (a)	b483	b484	a448	100	100	100	41.41	27.39	22.23
G	Festuca myuros (a)	b458	b465	a315	100	100	82	29.28	32.27	6.05
G	Poa bulbosa	b35	a6	c120	14	2	42	.17	.01	5.44
G	Poa fendleriana	b20	a-	a-	6	-	-	1.59	-	-
G	Sporobolus cryptandrus	67	64	84	28	24	31	1.31	.96	2.21
G	Vulpia octoflora (a)	b156	a37	a26	36	11	12	7.74	.98	.08
Total for Annual Grasses		1097	986	789	236	211	194	78.44	60.66	28.36
Total for Perennial Grasses		196	217	420	77	87	155	6.47	5.78	24.71
Total for Grasses		1293	1203	1209	313	298	349	84.92	66.45	53.08
F	Agoseris heterophylla	9	-	-	5	-	-	.02	-	-
F	Calochortus nuttallii	b37	a9	c62	21	3	34	.10	.01	.19
F	Draba nemorosa (a)	-	-	6	-	-	2	-	-	.01
F	Erodium cicutarium (a)	c407	a265	b342	100	86	93	8.93	2.24	11.95
F	Fritillaria spp.	3	-	-	1	-	-	.00	-	-
F	Lactuca serriola	1	5	1	1	2	1	.00	.01	.00
F	Tragopogon dubius	-	11	1	-	4	1	-	.02	.03
F	Veronica biloba (a)	-	-	2	-	-	2	-	-	.06
F	Verbascum blattaria	a20	c190	b149	11	78	59	.40	2.74	5.78

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %		
		'95	'96	'01	'95	'96	'01	'95	'96	'01
Total for Annual Forbs		407	265	350	100	86	97	8.93	2.24	12.02
Total for Perennial Forbs		70	215	213	39	87	95	0.54	2.78	6.01
Total for Forbs		477	480	563	139	173	192	9.48	5.03	18.04

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BASIC COVER --
Herd unit 00 , Study no: 5

Cover Type	Nested Frequency			Average Cover %		
	'95	'96	'01	'95	'96	'01
Vegetation	499	499	494	79.72	62.80	75.09
Rock	61	3	1	.45	.00	.03
Pavement	1	56	91	.00	.69	.25
Litter	499	500	461	78.74	79.65	38.20
Bare Ground	37	29	75	.18	.10	.47

SOIL ANALYSIS DATA --
Herd Unit 00, Study no: 05, Buffalo Scaffold

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
12.7	64.4 (12.4)	6.8	56.7	24.0	19.3	.9	10.8	208.0	.7

PELLET GROUP FREQUENCY --
Herd unit 00 , Study no: 5

Type	Quadrat Frequency			Pellet Transect	
	'95	'96	'01	Pellet Groups per Acre ⁞01	Days Use per Acre (ha) ⁞01
Bighorn Sheep	-	-	-	17	N/A
Deer	-	2	1	-	-
Bison	2	1	3	148	12 (30)